

WHY THE WORLD NEEDS MORE WOMEN SCIENTISTS FOR A FOOD-SECURE FUTURE

Ismahane Elouafi

International Center for Biosaline Agriculture (ICBA)
Academic City
Al Ain Road, Al Ruwayyah
P.O. Box 14660
Dubai, United Arab Emirates

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ISMAHANE ELOUAFI is Director General of the International Center for Biosaline Agriculture (ICBA), a not-for-profit research-for-development organization she has been leading since 2012. She is a visionary leader and strategic thinker. Before Joining ICBA, she was Director of Research Management and Partnerships Division at the Canadian Food Inspection Agency. She is a recipient of a number of awards and honors. Dr Elouafi holds a PhD degree in genetics from Cordoba University, Spain.



ABSTRACT

As climate change and population growth, among other things, put future global food security at risk, the world faces a daunting challenge of finding innovative and sustainable solutions to produce more food under increasingly unfavorable conditions. The Green Revolution offers some lessons on how humanity should overcome this predicament. One important lesson is that agricultural research and development are key to solving a potential global food crisis. The world needs a new Agriculture and Agri-business Revolution, but one that is more resource-efficient and gender-responsive as today challenges and realities are different. One way to bring about a new wave of much-needed research and innovation is to involve more women scientists in agricultural research as their potential has not been tapped fully yet.

Studies show that a larger number of women within teams is positively linked with higher levels of innovative thinking, creativity and productivity, ultimately increasing the likelihood of success. One large-scale, multi-country study found that gender-balanced teams are the most likely to experiment, be creative, share knowledge and fulfill tasks. According to this study, the most confident teams had a slight majority of women (60%). Research also shows that the more women there are in senior management, particularly within organizations that are focused on innovation, the better the organizations perform.

The agricultural sector is currently not enjoying the benefits that higher levels of female engagement in research would bring. While women make up more than 40% of the workforce in countries where agriculture is a key contributor to GDP, they do not enjoy the same level of access to training, agricultural inputs and land as men do.

There is also a disproportionately low number of women working in senior scientific and managerial positions. This gender gap is most visible in the staffing of agricultural research and extension organizations. As a result, policy and investment priorities may not be fully effective because they do not completely incorporate gender perspectives. Given women's role in agricultural production and consumption, potential benefits are being lost when they are needed most.

This is why it is important to invest more in building capacities of women scientists working in the agricultural research and development sector, especially in countries where food security is more vulnerable to climate change. Two programs to this effect that merit special mention are the African Women in Agricultural Research and Development (AWARD) and the Young Arab Women Scientists Leadership (*Tamkeen*) program in Sub-Saharan Africa and the Middle East and North Africa respectively. Both focus on empowering women in science through tailored fellowships and will be discussed in more detail in the presentation.

KEYWORDS

Women scientists; food security; climate change; agricultural research and development

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Dr. Ismahane Elouafi
Director General
International Center for Biosaline Agriculture (ICBA)




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Global Food Security Challenge


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World Population

1990		5.3 billion
2017		7.6 billion
2030		8.6 billion
2050		9.8 billion
2100		11.2 billion

The combined population of the 47 least developed countries will increase by 33% between 2017 and 2030
Source: UN

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Global **food production** will need to increase **70%** by 2050
POPULATION GROWTH
CHANGING DIETS

Annual cereal production will have to grow by almost a billion tonnes (2.1 billion tonnes today)
Source: FAO

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Is Current Agriculture Enough?



Yields of major crops are projected to fall by 25% and more by 2050 due to, among other things, climate change
Source: OECD

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Climate Change is the Biggest Risk

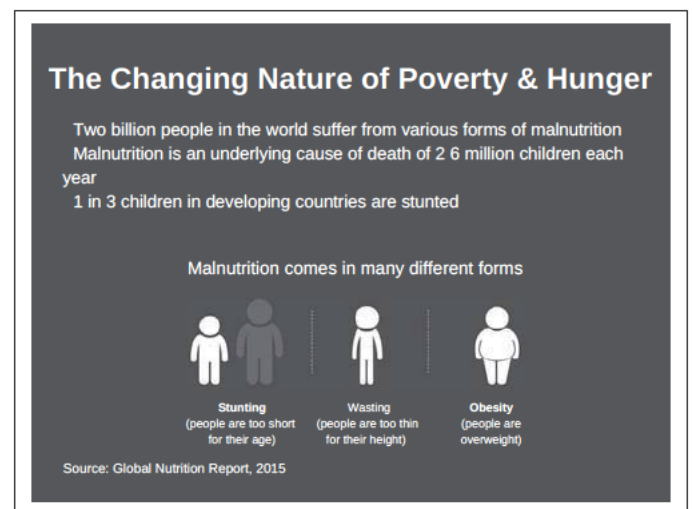


Drought and extreme heat reduced crop yields by as much as 50% between 1964 and 2007
Source: Nature

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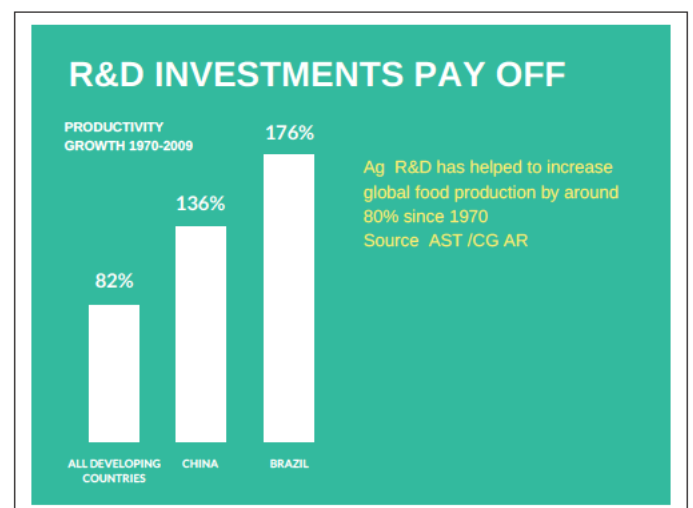
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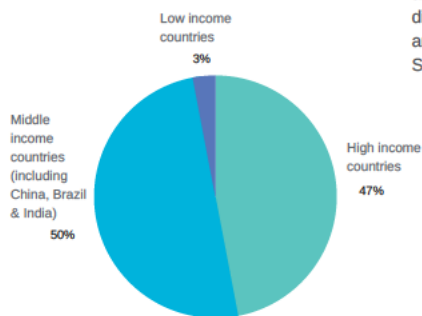


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Total Global Public Spending on Ag. R&D in 2011: 38.1 billion USD



For 2011, 5% of worldwide investment in all forms of R&D was directed towards food and agriculture
Source: Nature

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Per capita Ag. R&D Public Spending in High-income and Low-income Countries in USD



In 2011, the top 10 countries ranked by spending on Ag. R&D accounted for 70% of the total investment worldwide; the bottom 100 contributed just 9% of that year's total.
Source: Nature

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AGRICULTURE & AGRI-BUSINESS REVOLUTION



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Women in Agriculture



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Smallholder Agriculture



500 million smallholder farms provide up to 80% of food consumed in the developing world.
Source: UN

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Unequal access to land, finance & other resources



If women had the same access to productive resources as men, the number of hungry people in the world could be reduced by up to 150 million.
Source: UN

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Extension Services: Does Gender Matter?

Only 15% of the world's extension agents are women, and only 5% of women farmers benefit from extension services
Source: Farming First

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Empowering Women in Agriculture and Science

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Women as Drivers of Success and Innovation

Women are critical to innovation

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AWARD Program in Africa

Since 2008 the AWARD program has empowered 1,158 African scientists and trained 1,466 researchers

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ICBA's Programs to Empower Women in Science

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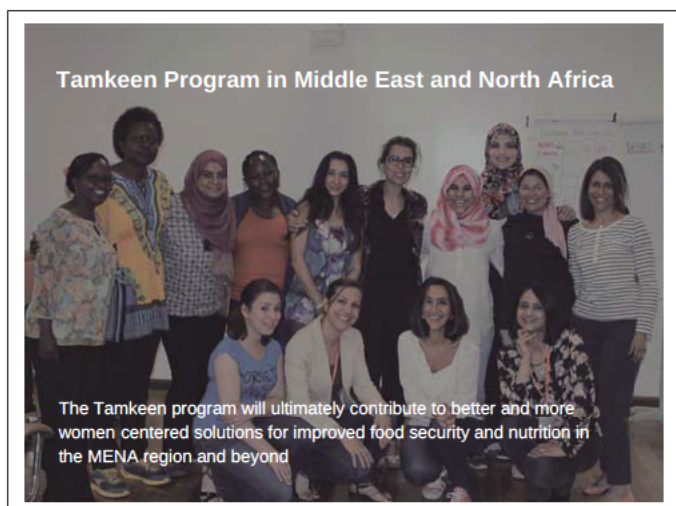
Tamkeen Program in Middle East and North Africa

The average share of women scientists across the MENA region stands at 17% which is the lowest in the world

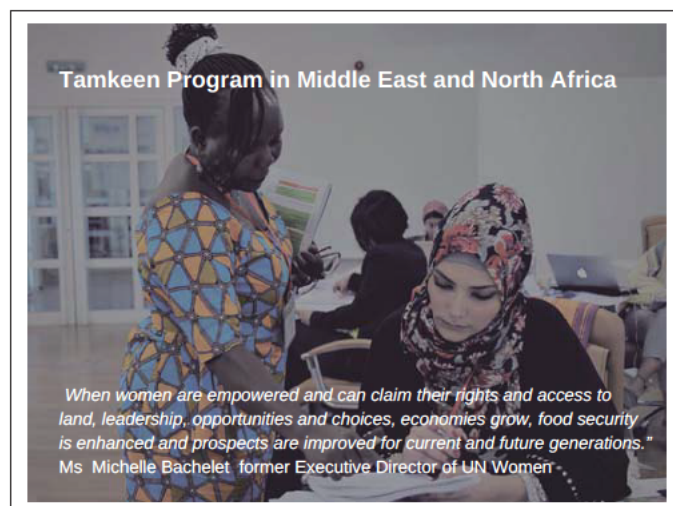
BILL & MELINDA
GATES foundation



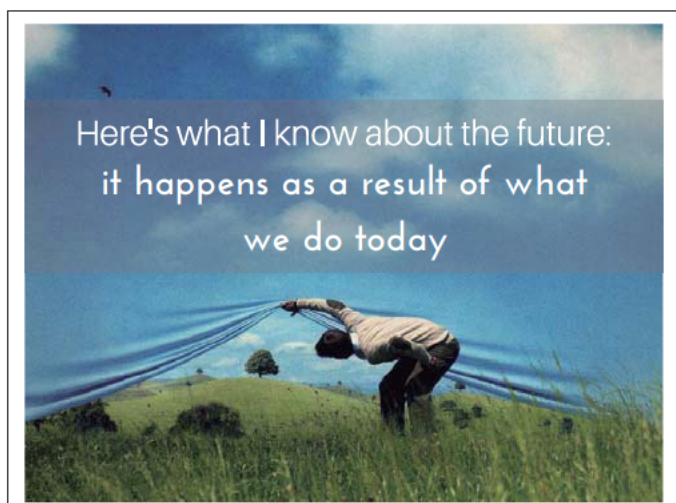
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